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Published in:
RSC Advances

DOI:
[10.1039/D0RA04025H](https://doi.org/10.1039/D0RA04025H)

Published: 08/06/2020

Document Version
Publisher's PDF, also known as Version of record

[Link to publication on the UWS Academic Portal](#)

Citation for published version (APA):

Hifnawy, M. S., Fouda, M. M., Sayed, A. M., Mohammed, R., Hassan, H. M., AbouZid, S. F., Rateb, M. E., Keller, A., Adamek, M., Ziemert, N., & Abdelmohsen, U. R. (2020). The genus *Micromonospora* as a model microorganism for bioactive natural product discovery. *RSC Advances*, 10(35), 20939-20959. <https://doi.org/10.1039/D0RA04025H>

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The genus *Micromonospora* as a model microorganism for bioactive natural products discovery

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Figure S1: *Micromonospora* - Biosynthetic Gene Cluster Similarity Networks of “Others” BGCs.

Gene cluster similarity networks of PKS- BGCs generated with BiG-SCAPE from 87 *Micromonospora* genomes. Gene clusters were identified and classified using antiSMASH. Each node represents one sequenced gene cluster. Connected clusters likely encode for similar compounds. To identify already known and characterized BGCs, the dataset from the MIBiG database was added to the network analysis. MIBiG compounds are circled in red.

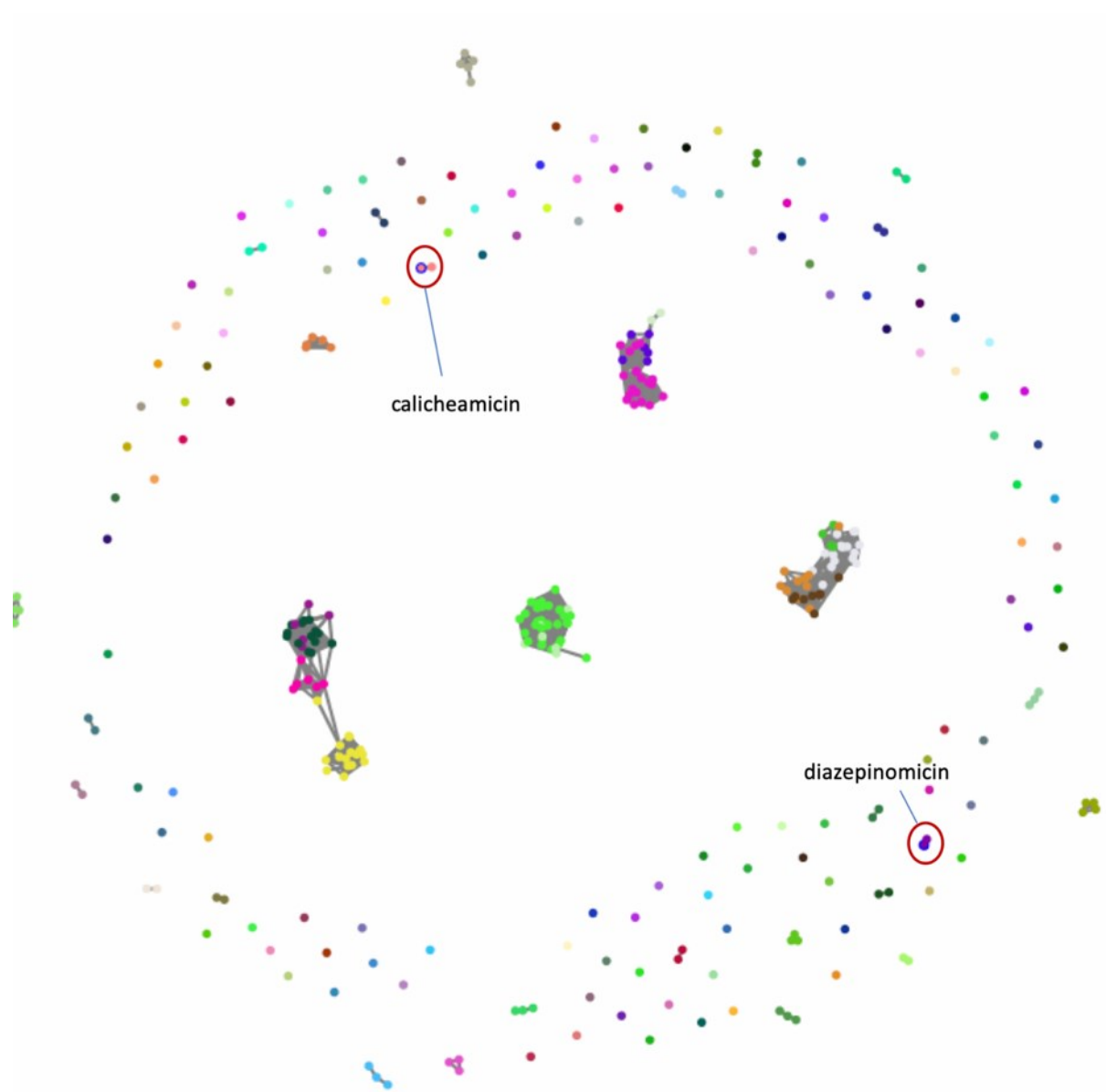


Figure S2: *Micromonospora* - Biosynthetic Gene Cluster Similarity Networks of “PKS I” BGCs

Gene cluster similarity networks of PKS- BGCs generated with BiG-SCAPE from 87 *Micromonospora* genomes. Gene clusters were identified and classified using antiSMASH. Each node represents one sequenced gene cluster. Connected clusters likely encode for similar compounds. To identify already known and characterized BGCs, the dataset from the MIBiG database was added to the network analysis. MIBiG compounds are circled in red.



Figure S3: *Micromonospora* - Biosynthetic Gene Cluster Similarity Networks of “Saccharides” BGCs

Gene cluster similarity networks of PKS- BGCs generated with BiG-SCAPE from 87 *Micromonospora* genomes. Gene clusters were identified and classified using antiSMASH. Each node represents one sequenced gene cluster. Connected clusters likely encode for similar compounds. To identify already known and characterized BGCs, the dataset from the MIBiG database was added to the network analysis. MIBiG compounds are circled in red.

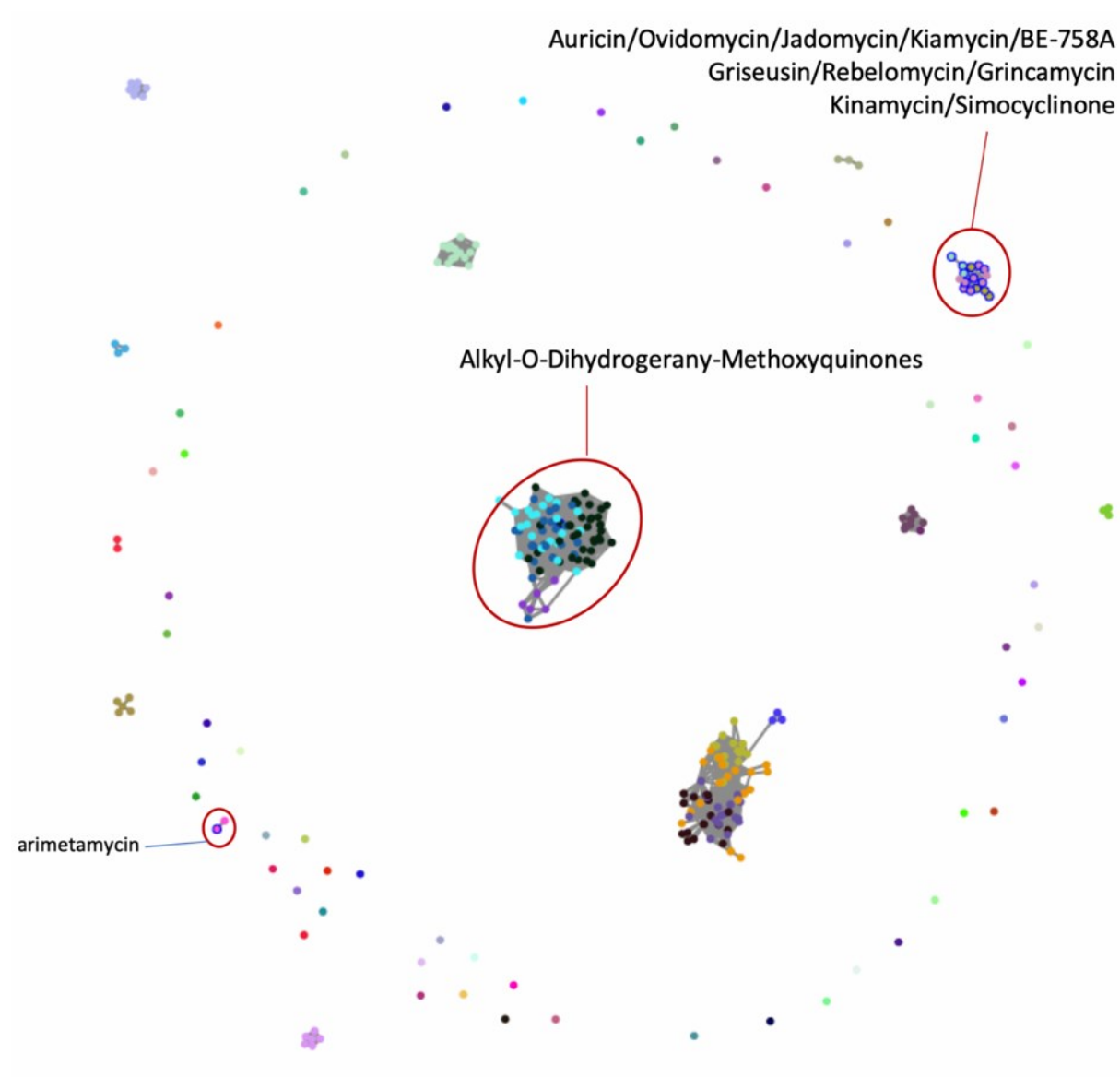


Figure S4: *Micromonospora* - Biosynthetic Gene Cluster Similarity Networks of “other polyketides” BGCs

Gene cluster similarity networks of PKS- BGCs generated with BiG-SCAPE from 87 *Micromonospora* genomes. Gene clusters were identified and classified using antiSMASH. Each node represents one sequenced gene cluster. Connected clusters likely encode for similar compounds. To identify already known and characterized BGCs, the dataset from the MIBiG database was added to the network analysis. MIBiG compounds are circled in red.

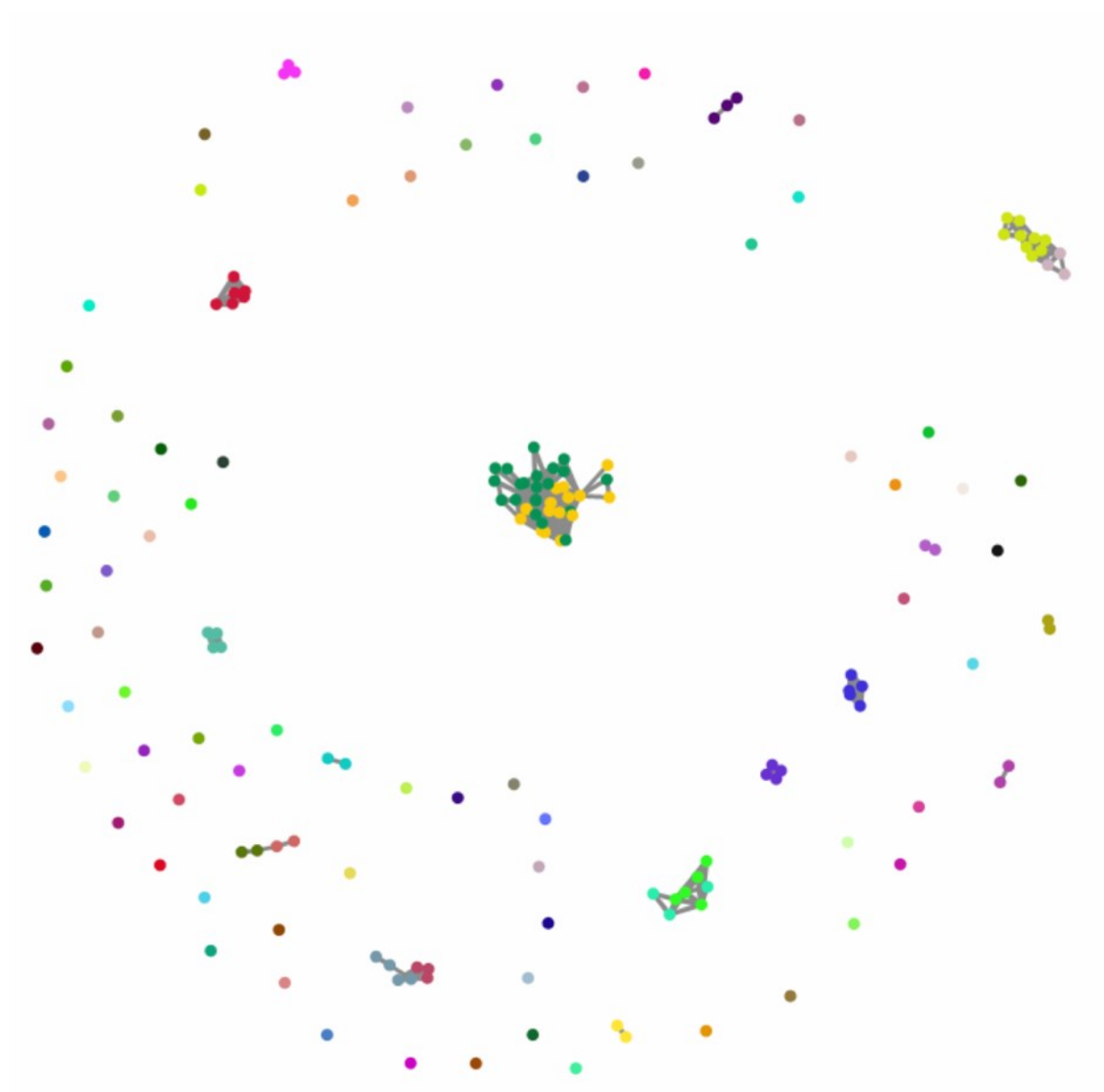


Figure S5: *Micromonospora* - Biosynthetic Gene Cluster Similarity Networks of “PKS-NRPS Hybrids” BGCs

Gene cluster similarity networks of PKS- BGCs generated with BiG-SCAPE from 87 *Micromonospora* genomes. Gene clusters were identified and classified using antiSMASH. Each node represents one sequenced gene cluster. Connected clusters likely encode for similar compounds. To identify already known and characterized BGCs, the dataset from the MIBiG database was added to the network analysis. MIBiG compounds are circled in red.

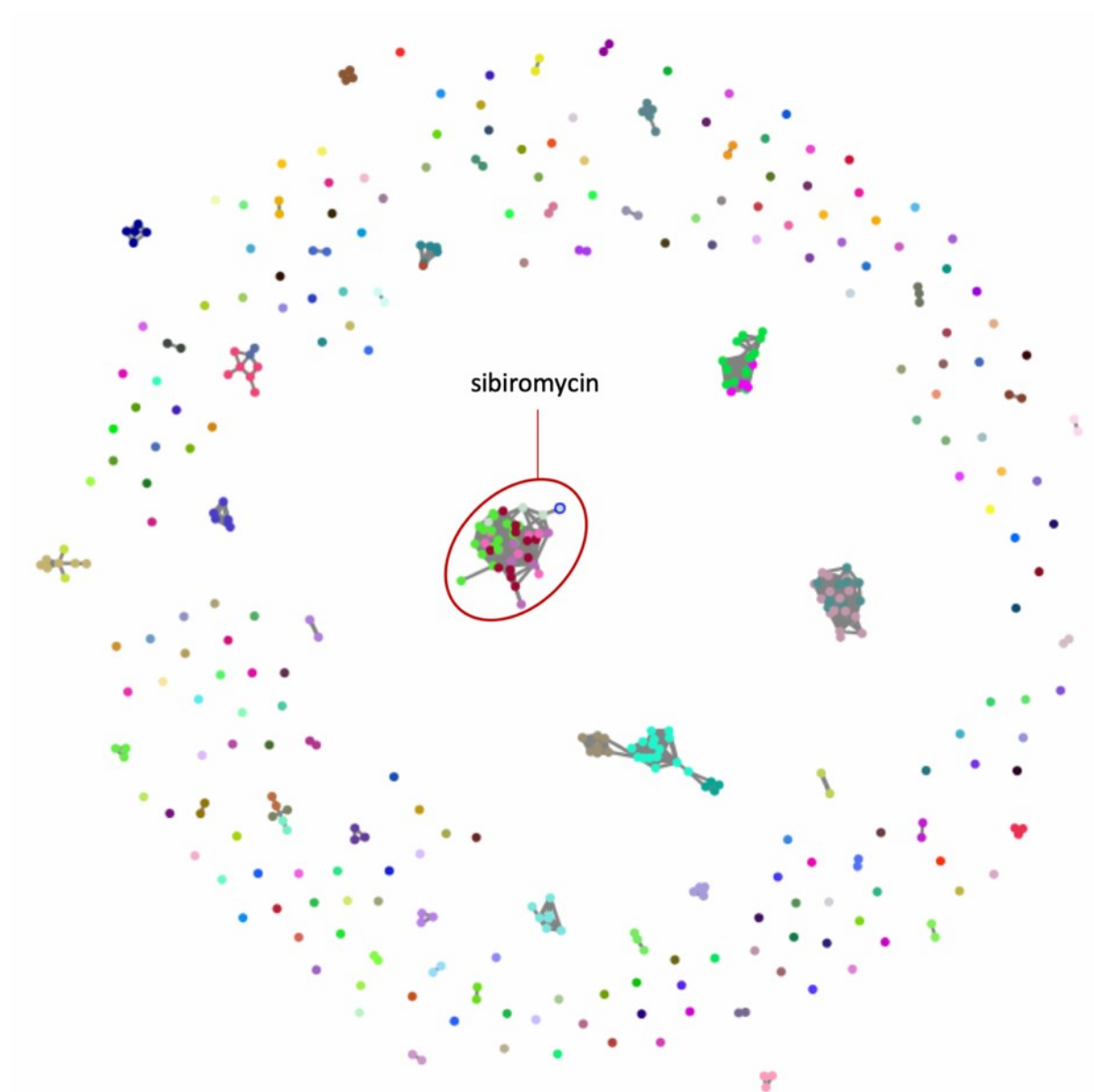


Figure S6: *Micromonospora* - Biosynthetic Gene Cluster Similarity Networks of “NRPS” BGCs

Gene cluster similarity networks of PKS- BGCs generated with BiG-SCAPE from 87 *Micromonospora* genomes. Gene clusters were identified and classified using antiSMASH. Each node represents one sequenced gene cluster. Connected clusters likely encode for similar compounds. To identify already known and characterized BGCs, the dataset from the MIBiG database was added to the network analysis. MIBiG compounds are circled in red.

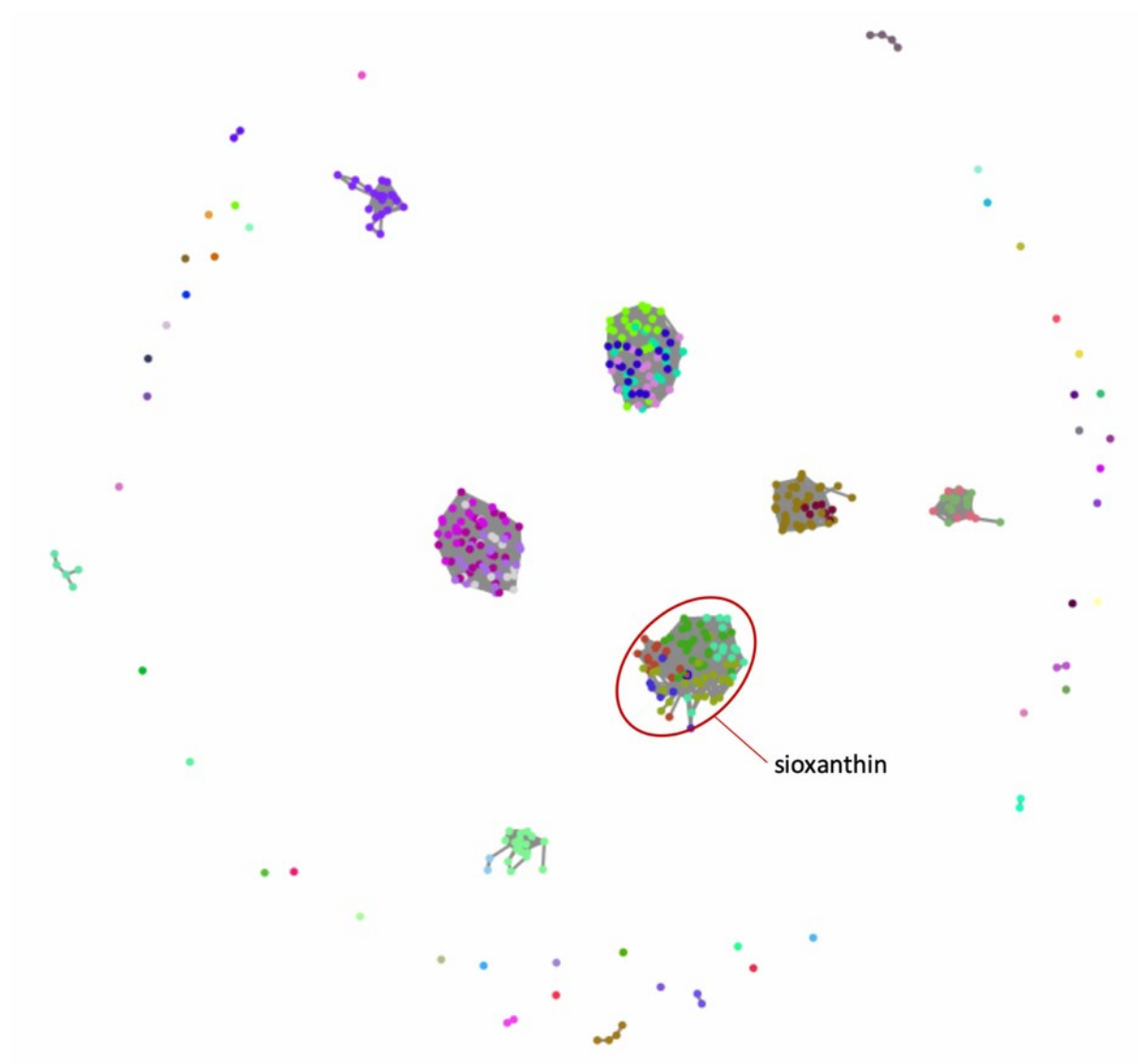


Figure S7: *Micromonospora* - Biosynthetic Gene Cluster Similarity Networks of “Terpene” BGCs

Gene cluster similarity networks of PKS- BGCs generated with BiG-SCAPE from 87 *Micromonospora* genomes. Gene clusters were identified and classified using antiSMASH. Each node represents one sequenced gene cluster. Connected clusters likely encode for similar compounds. To identify already known and characterized BGCs, the dataset from the MIBiG database was added to the network analysis. MIBiG compounds are circled in red.

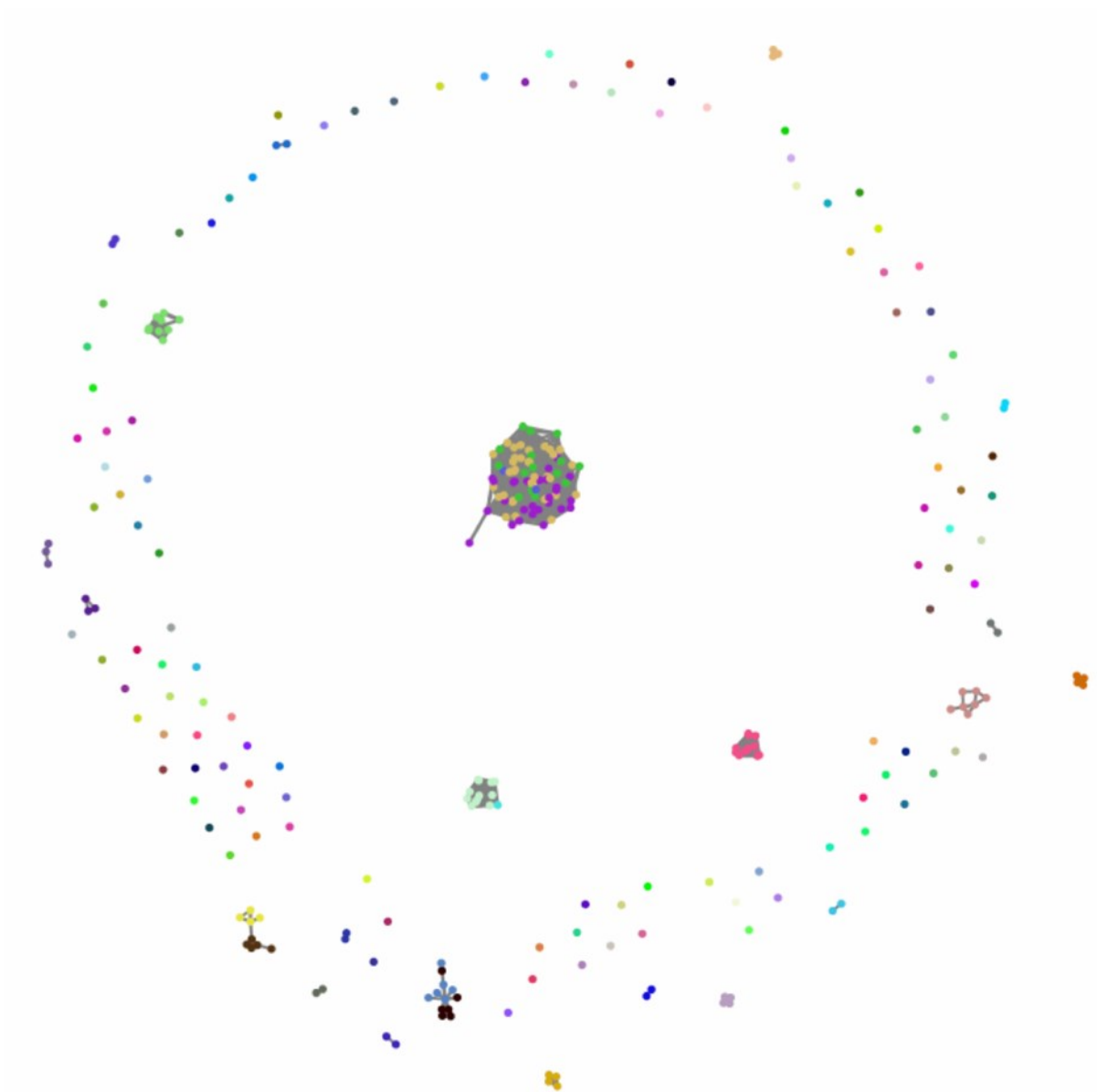


Figure S8: *Micromonospora* - Biosynthetic Gene Cluster Similarity Networks of “RiPPs” BGCs

Gene cluster similarity networks of PKS- BGCs generated with BiG-SCAPE from 87 *Micromonospora* genomes. Gene clusters were identified and classified using antiSMASH. Each node represents one sequenced gene cluster. Connected clusters likely encode for similar compounds. To identify already known and characterized BGCs, the dataset from the MIBiG database was added to the network analysis. MIBiG compounds are circled in red.

Table S1. Natural products derived from *Micromonospora*

Compounds	Class	Microbe	Source	Year	Activity	references
Paromamine(1)	Aminoglycoside	Minor component of the gentamicin complex prod. by <i>Micromonospora spp</i>	Soil	1959	Weakly active against Gram-positive bacteria Important intermed. for semisynthetic aminoglycoside	¹
Gentamicins (2)	Aminoglycoside	<i>M. echinospora</i> NRRL 2953 <i>M. echinospora</i> NRRL 2985	Soil	1963	Antibacterial	²
Antibiotic 460 (3)	Aminoglycoside	<i>M. chalcea</i> subsp. <i>flavida</i> NRRL 3222	Soil	1969	Antibacterial MIC (2.5- 7.5 µg/ml) Gram positive bacteria	³
6640 (sisomicin) (4)	Aminoglycoside	<i>M. inyoensis</i> NRRL 3292.	Soil	1970	Antibacterial activity. MIC values ranged from (0.01-7.5 µg/ml).	⁴
Gentamine C ₁ (5)	.Aminoglycoside	<i>M. purpurea-nigrescens</i>	Soil	1971	Active mainly against Gram-positive bacteria	⁵
Neomycin B (6)	Aminoglycoside	<i>M. chalcea</i> 69-683	-----	1971	Antibacterial activity	⁶
Antibiotic G-418 (7)	Aminoglycoside	<i>M. echinospora</i> NRRL 5326	Soil	1974	Antibacterial with MIC values (16-64µg/ml). Antiparasitic activity	⁷ ⁸

Mutamycins (8)	Aminoglycoside	<i>M. inyoensis</i> NRRL 3292	Soil	1974	Antibacterial activity MIC (0.08-3µg/ml).	⁹
Sagamycin (9) (XK-62-2)	Aminoglycoside	<i>M. sagamiensis</i> subsp. nonreducans ATCC 21803. <i>M. sagamiensis</i> ATCC 21826.	Soil	1974	Antibacterial activity MIC (0.001-8.3 µg/ml)	¹⁰
Verdamycin (10)	Aminoglycoside	<i>M. grisea</i> NRRL 3800	Soil	1974	Antibacterial activity. MIC (0.5-8 µg/ml)	¹¹
Gentamicin _{2b} (11)	Aminoglycoside	<i>M. sagamiensis</i>	Soil	1975	Antibacterial less ototoxic and nephrotoxic than Gentamicin C complex	¹²
Antibiotic G-52 (12)	Aminoglycoside	<i>M. zionensis</i> NRRL 5466	Soil	1976	Antibacterial activity for gram positive and gram negative bacteria with IC ₅₀ (0.01- 17.5µg/ml and 0.03-7.5µg/ml respectively	¹³
Antibiotic 66-40B Sisomicin B (13)	Aminoglycoside	<i>Minor prod. from</i> <i>M. inyoensis</i>	Soil	1976	Antibacterial	¹⁴
Antibiotic 66-40D Sisomicin D (14)	Aminoglycoside	<i>Minor prod. from</i> <i>M. inyoensis</i>	Soil	1976	Antibacterial	¹⁴
Destomycin B C ₂₁ HC ₂₁ H ₃	Aminoglycoside	<i>M. cyaneogranulata</i>	Soil	1976	Antibacterial	¹⁵

(15)	$_{39}\text{N}_3\text{N}_3\text{O}_{13}$ O_{13}					
Gentamicin A (16)	Aminoglycoside	<i>Micromonospora spp</i>	Soil	1976	Antibacterial	2
Gentamicin B,B1 (17,18)	Aminoglycoside	<i>Micromonospora spp</i>	Soil	1976	Antibacterial	8
Gentamicin C ₁ ,C _{1a} (19,20)	Aminoglycoside	<i>M. purpurea</i> , <i>M. echinospora</i> , <i>M. sagamiensis</i> , <i>M. scabitana</i> , <i>M.longisporoflavus</i>	Soil	1976	Antibacterial	12
Gentamicin C _{2a} (21)	Aminoglycoside	<i>M. purpurea and M. sagamiensis</i>	Soil	1976	NA	8
Gentamicin X ₂ (22)	Aminoglycoside	<i>M. purpurea and M. echinospor</i>	Soil	1976	NA	8
Gentoximicin B (23)	Aminoglycoside	<i>M. purpurea</i>	Soil	1976	NA	8
Fortimicins A and B (24,25)	Aminoglycoside	<i>M. olivoasterospora</i> ATCC 21819. <i>Micromonospora species</i> MK-70	Soil. Soil	1976 1977	Antibacterial against gram positive with with MIC (0.2-10µg/ml). and negative bacteria (0.08-5µg/ml)for fortimicin A.	16
Antibiotic I1 (26)	Aminoglycoside	<i>M.purpurea</i>	Soil	1977	Antibacterial	5
Antibiotic 66-40C (27)	Dimeric aminoglycoside antibiotic	<i>M.inyoensis</i>	Soil	1977	NA	17
Antibiotic Y 02077Hδ 3"-N-	Aminoglycoside	<i>M. purpurea and Micromonospora</i>	Soil	1977	NA	5

Demethylgentamicin C ₂ (28)		<i>sp. Y-02077H</i>				
Garamine (29)	Aminoglycoside	<i>Micromonospora</i> cultures. Component of Sisomicin.	Soil	1977	NA	5
Gentamicin A ₁ ,A ₂ ,A ₃ ,A ₄ (30,31,32,33)	Aminoglycoside	<i>M. purpurea</i> and <i>M. echinospora</i>	Soil	1977	-----	5
Gentamine C ₁ (34)	Aminoglycoside	<i>M.purpurea-nigrescens</i>	Soil	1977	Antibacterial Active against Gram-positive bacteria	5
Gentamine C _{1a} (35)	Aminoglycoside	<i>M. purpurea-nigrescens.</i>	Soil	1977	Antibacterial Active against gram positive bacteria	5
Gentamine C ₂ (36)	Aminoglycoside	<i>M.purpurea-nigrescens.</i>	Soil	1977	Antibacterial Active against Gram-positive bacteria	5
4"-Demethylgentamicin C (37)	Aminoglycoside	<i>M. purpurea-nigrescens</i>	Soil	1977	Antibacterial	5
4"-Demethylgentamicin C ₂ (38)	Aminoglycoside	<i>M. purpurea-nigrescens</i>	Soil	1977	Antibacterial	5
4" Demethylgentamicin C _{1a} (39)	Aminoglycoside antibiotic	<i>M. purpurea-nigrescens.</i>	Soil	1977	Antibacterial	5
6'-Methylgentamicin A (40)	Aminoglycoside	<i>M. purpurea-nigrescens</i>	Soil	1977	Antibacterial	5
6'-Methylgentamicin A ₁ (41)	Aminoglycoside	<i>M. purpurea-nigrescens</i>	Soil	1977	Antibacterial	5
Antibiotic XK 62-4	Aminoglycoside	<i>M. sagamiensis</i>	Soil	1978	Antibacterial	Ger. Pat., 1978, 2

(42)						821 948
3"-N-Demethylsisomicin Antibiotic 66-40G	Aminoglycoside	<i>M. inyoensis and M. sagamiensis.</i>	Soil	1978	Antibacterial	18
(43)						
Fortimicin D (44)	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1979	Antibacterial	19
Fortimicin KE	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1979	Weak antibacterial	19
(45)						
Antibiotic X 14847(46)	Aminoglycoside	<i>M. echinospora</i>	Soil	1980	Antibacterial Active against gram positive bacteria	20
Fortimicin E (47)	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1980	Weak antibacterial	21
Fortimicin KO ₁	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1980	Antibactrerial	22
Fortimicin AE						
(48-49)						
Fortimicin AP(50)	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1980	Antibactrerial	23
Fortimicin AM(51)						
Fortimicin AH	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1980	Antibacterial	24
Fortimicin AI						
(52,53)						
Fortimicin AK (54)	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1980	NA	24
Fortimicin AO (55)	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1980	NA	24
O-Demethylfortimicin A	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1980	NA	25
(56)						
2'N-Glycylfortimicin KE	Aminoglycoside	<i>M. olivoasterospora</i>	soil	1981	NA	26
(57)						
Antibiotic SU1,SU2,SU3,SU4	Aminoglycoside	<i>M. sagamiensis</i>	Soil	1982	antibacterial against gentamicin resistant strains	27
(58-61)						
2-Hydroxysagamicin	Aminoglycoside	<i>M. sagamiensis and M. purpurea</i>	Soil	1982	Antibacterial	28
(62)						
6'-N-Methylverdamicin	Aminoglycoside	Prod. from Verdamicin by a	Soil	1982	Antibacterial	29
(63)						

		strain of <i>M. inyoensis</i> and <i>M. zionensis</i>				
		NRRL5466				
5-Deoxygentamicin C _{2b} (64)	Aminoglycoside	<i>M. purpurea</i>	Soil	1983	Antibacterial	US Pat., 1983, 4 412 068
Antibiotic FU 10 (65)	Aminoglycoside	<i>M. olivoasterospora</i>	Soil	1984	Weak antibacterial	³⁰
Fortimicin KK (66)	Aminoglycoside	Micromonospora olivoasterospora	Soil	1984	Antibacterial	³¹
Fortimicin KL1 (67)	Aminoglycoside	Micromonospora olivoasterospora	Soil	1984	Antibacterial	³¹
Vertilmicin (68)	Aminoglycoside	Semisynthetic, prod. by <i>Micromonospora sp</i>	Soil	1987	Antibacterial	³²
Calicheamicins (69)	Aminoglycosidic antibiotic complex. Enediyne antibiotic	<i>M.echinospora ssp. calichensis</i> NRRL 15839	Soil	1989	Antineoplastic agent	³³
Antibiotic Sch 58777 Orthosomycin J (70)	Aminoglycoside	<i>M. carbonacea var. africana</i>	Soil	1997	Antibacterial against <i>Staphylococcus aureus</i>	³⁴
Fortimicin KR1 (71)	Aminoglycoside	<i>Micromonospora olivoasterospora</i>	Sponge	2010	Antibacterial	³⁵
Primycin, Debrycin. Ebrimycin (72-74)	Macrolide complex	<i>M. galeriensis</i>	Soil	1954	Potent ionophore. Active against Gram-positive bacteria and mycobacteria. Antifungal agent	³⁶

Megalomicins A ₁ ,B,C ₁ ,C ₂ (75-78)	Macrolides	<i>M. megalomicea</i> subsp. megalomicea NRRL 3274 <i>M. megalomicea</i> subsp. nigra NRRL 3275	Soil	1969	Antibacterial MIC A (0.075 -1.2 µg/ml) B ((0.005-5 µg/m). C1 (0.003- 1.2µg/ml). C2 ((0.0005-0.6 µg/ml). Antiviral C1 Antiparasite (IC ₅₀ 0.2, 1, 2, 3, and 8 µg/mL) A1.	37
Rosamicin (79)	Macrolide	<i>M. rosaria</i>	Soil	1972	Antibacterial Gram positive with MIC 0.03-3 µg/ml and Gram negative bacteria with MIC ranged from (0. 3- 7.5 µg/ml).	38
Antibiotic XK 41B2 (80)	Macrolide	<i>M. inositola</i>	Soil	1974	NA	39
Juvenimicins A ₂ ,A ₃ ,A ₄ ,B ₁ ,B ₃ (81-85)	Macrolides	<i>M.chalcea</i> var. <i>izumensis</i>	Soil	1976	Antibacterial Gram +ve MIC (0.01- 100µg/ml) Gram –ve MIC (5- >100 µg/ml)	40 41
Antibiotic M 4365G1 (86)	Macrolide	<i>M. capillata</i>	Soil	1977	Antibacterial Active against gram positive bacteria	42

Repromicin Antibiotic M 4365G2 (87)	Macrolide	<i>M. capillata and M. rosari</i>	Soil	1978	Antibacterial Active against gram positive bacteria	43
Antlermicin B Antlermicin C (88,89)	Macrolide	<i>M. chalcea-kazunoensis</i> sp. T-90.	Soil	1980	Antibacterial Antitumor	44
Mycinamycin I,II.III.IV,V (90-94)	Macrolide	<i>M. griseorubida A11725</i>	Soil	1980	Active against gram positive bacteria, Haemophilus influenzae and mycoplasmas (MIC 0.1 – 3.12 µg/mL)	45
Protylonolide (95)	Macrolide	<i>M. rosaria</i>	Soil	1980	Biosynth. precursor to Tylonolide.	46
20-Deoxorosaranolide (96)	Macrolide	<i>M. rosaria</i>	Soil	1982	Prob. intermed. in biosynth. of Rosamicin	47
Lipiarmycin A ₃ (97)	Macrolide	<i>M. echinospora ssp. armeniaca</i>	Soil	1983	Antibacterial	48
23-Hydroxyprotylonolide (98)	Macrolide	<i>Micromonospora sp. YS-02930K</i>	Soil	1983	NA	49
19,23-Dihydroxyprotylonolide (99)	Macrolide	<i>Micromonospora sp. YS-02930K</i>	Soil	1983	NA	49
Neorustmicin A (100)	Macrolide	<i>M. chalcea</i> 1302-AV	Soil	1985	Antifungal , MIC (0.2-0.4µg/ml).	50

Rustmicin (101)	Macrolide	<i>M. narashinoensis</i> 980-MC.	Soil	1985	Antifungal MIC (0.8-1µg/ml).	50
Galbonolide A (102)	Macrolide	<i>M.narasinhoensis</i> <i>and M. chalcea</i>	Soil	1985	Antifungal	51
Clostomicins A, B ₁ , B ₂ , C, D (103-107)	Macrolide	<i>M. echinospora</i> subsp. <i>armeniaca</i> KMR- 593	Soil	1986	Antibacterial Diameter of inhibition zone (mm) (10.2 – 36.8).	52
Neorustmicin B,C,D (108-110)	Macrolide	<i>M. chalcea</i> 1302- AV	Soil	1986	Antifungal Neorustmicin B 1.0 µg/ml While, neorustmicins C and D 4 and 5 µg/ml, respectively	53
Lipiarmycin B ₃ (111)	Macrolide	<i>M. echinospora</i>	Soil	1988	Antibacterial Active against gram positive bacteria	54
Izenamicin B2 (Glycoside , aglycon) A ₁ -A ₄ B ₁ -B ₄ (112-115)	Macrolide	<i>Micromonos</i> <i>pora sp</i> S-02930K.	Soil	1989	Antibacterial	55

Antibiotic 6108A ₁ (116)	Macrolide	<i>M. fastidiosus</i>	Soil	1990	Antibacterial	56
Antibiotic 6108 A ₁ , B (117,118)	Macrolide	Micromonospora strain BA06108	Soil	1990	Antibacterial Gram-positive with MIC (0.1- 0.39 µg/ml)and some Gram- negative MIC (0.1- 50µg/ml)	57
Antibiotic 6108C (119)	Macrolide antibiotic (unusual Tylosin-type)	<i>M. Pora fastidiosa</i>	Soil	1990	Antibacterial	56
Antibiotic 6108D (120)						58
Rosamicin;6-Hydroxy (121)	Macrolide	<i>M. rosaria</i>	Soil	1990	NA	57
Mycinamycin X, XI (122,123)	Macrolide	<i>M. griseorubida</i>	Soil	1991	Antibacterial mainly against gram positive bacteria	59
Mycinamycin IX, XII, XIII, XIV, XV, XVI, XVII, XVIII (124-131)	Macrolide	<i>M. griseorubida</i>	Soil	1991	Active against gram positive bacteria with MIC value ranged from (0.05- 12.5µg/ml).	59
AC6H (132)	Macrolide	<i>M. carbonacea</i> subsp.	Soil	1993	Anticancer IC 50 (60
	Spirotetronate glycoside.	carbonacea K55- AC6			6.25-25 µg/ml)	
Quinolidomicins A ₁ , A ₂ , and B ₁ (133-135)	Polyene macrolides	<i>Micromonospora</i> <i>sp.</i> JY16 - FERM BP-3940	Soil	1993	Antitumor IC ₅₀ 327nM/ml).	61

19-Decarbonyltylonolide (136)	Macrolide	<i>Micromonospora</i> <i>sp.</i> YS 02930k	Soil	1994	NA	62
16-Hydroxyprotylonolide (137)	Macrolide	<i>Micromonospora</i> <i>sp.</i> YS-02930K	Soil	1994	NA	(Yasumuro et al., 1994
19-Hydroxyprotylonolide (138)						
Royamicin A(139)	Macrolide	<i>M. roseopurpurea</i> <i>M90</i>	Soil	1994	Antibacterial Antifungal	63
Pyrrolosporin A (140)	Macrolide	<i>Micromonospora</i> <i>sp.</i> ATCC 53791	Soil	1996	Antibacterial Gram positive MIC (0.5 - 4 µg/ml) Gram negative MIC (63- 125µg/ml) Antitumor	64 65
Galbonolide B, 21- hydroxy (141)	Macrolide	<i>Micromonospora</i> <i>sp.</i> culture MA	-----	1998	Moderate antifungal activity.	66
Rustmicin, 21-hydroxy (142)	Macrolide	Micromonospora <i>sp.</i> culture MA	-----	1998	Antifungal activity less than rustamicin	66
Antibiotic IB 96212 (143)	Macrolide	<i>Micromonospora</i> <i>sp.</i>	Marine	2000	Cytotoxic	67
Sch 351448 (144)	Macrolide	<i>Micromonospora</i> sp	Soil	2000	A novel ionophoric compound and is a weak activator of low density	68

					lipoprotein receptor (LDL-R) promoter with an IC ₅₀ 25 µM	
Micromonospolide A,B,C (145-147)	Macrolides	<i>Micromonospora</i> <i>sp. Nov.</i>		2001	Specific inhibitor of starfish embryogenesis. Micromonospolide A,B,C MIC of 0.01, 0.011, and 1.6 µg/mL, respectively.	⁶⁹
Bafilomycin R 176502 Antibiotic R 176502 (148)	Macrolide antibiotic	<i>Micromonospora</i> <i>sp.</i>	River sediment	2003	Cytotoxic	⁷⁰
Micromonosporin A (149)	Macrolide	<i>Micromonospora</i> <i>sp.</i> (strain TT1-11).	Acidic peat swamp forest.	2004	NA	⁷¹
IZI (150)	Macrolide	<i>M. rosara</i> TPMA0001	-----	2009	NA	⁷²
IZII,IZIII (151,152)	Macrolides	<i>M. rosara</i> TPMA0001	-----	2010	NA	⁷³
levantilide A and B (153,154)	Macrolides	<i>Micromonospora</i> strain M71-A77	Marine	2011	Anticancer against gastric tumor cells GXF 251L (IC ₅₀ 40.9 µM), lung tumor cells LXFL 529L (IC ₅₀ 39.4 µM), mammary tumor cells MAXF 401NL (IC ₅₀ 28.3	⁷⁴

					<p>μM), melanoma tumor cells MEXF 462NL (IC₅₀ 48.6 μM), pancreas tumor cells PAXF 1657L (IC₅₀ 20.7 μM) and renal tumor cells RXF 486L (IC₅₀ 52.4 μM).</p>	
Juvenimicin C, 5-O-alpha-L-rhamnosyltylactone (155)	Macrolide	<i>Micromonospora sp.</i>	Marine	2013	<p>Antioxidant enhanced QR1 enzyme activity and glutathione levels by two-fold with CD values of 10.1 and 27.7 μM, respectively. QR1 (quinon reductase 1)</p>	75
Levantilide C (156)	Macrolide	Micromonospora sp. FIM07-0019	Marine	2013	<p>Anticancer Against HL-60 (IC₅₀ 32.5 μM), MDA-MB-231 (IC₅₀ 26.8 μM), SW620 (IC50 16.4 μM) SMMC7721 (IC₅₀ 39.9 μM)</p>	76

Micromonolactam (157)	Macrolide	<i>Micromonospora sp</i>	Marine	2013	NA	77
Neaumycin B (158)	Macrolide	Micromonospora sp. (strain CNY- 010)	Surface of the brown alga Styopodiu m zonale,	2018	Potent Inhibitor of Glioblastoma IC ₅₀ (1μM).	78
Tetrocarcin A Antlermicin A (159,160)	Tetrocarcin	<i>M. chalcea</i> subsp. <i>kazunoensis</i>	Soil	1980	Antibacterial MIC (0.015 μg/ml) Antitumor Antimalarial	79
Tetrocarcin complex A, B, C (161-163)	Tetrocarcin	<i>M. chalcea</i> KY11091	Soil	1980	Antitumor	80
Tetrocarcin G,H,K,L (164-167)	Spirotetronate glycosides					
	Tetrocarcin	<i>M. chalcea</i> KY11091	Soil	1980	Antibacterial	80
	Spirotetronate glycoside					
Tetronolide Antibiotic F2 (168)	Aglycon of tetrocarcin A	<i>M. chalcea</i>	Soil	1980	Antibacterial Antitumor	80
Tetrocarcin E1 (A) Tetrocarcin E2 (A) Tetrocarcin F1 (A) Tetrocarcin M Tetrocarcin J Tetrocarcin I (A)	Spirotetronate glycoside	<i>M. chalcea</i>	Soil	1982	Antibacterial MIC (3- 150μg/ml).	81

Tetrocarcin F (A)						
Tetrocarcin C (A)						
Tetrocarcin D (A)						
Tetrocarcin L						
Tetrocarcin K Tetrocarcin B						
(169-180)						
Arisostatin A&B (181,182)	New analogs of tetrocarcin A	<i>Micromonospora</i> sp. TP-A0316	Sea water sample	2000	Antibacterial MIC (0.39-25µM. Antitumor IC50 (0.059- 0.26 µM)	82
Tetrocarcin P (183)	Tetrocarcin	<i>M. harpali</i> SCSIO GJ089.	Sediment sample.	2017	Antibacterial MIC (1 -2µg/ml) against Bacillus.	83
	Spirotetronate glycoside.		Marine			
22-dehydroxymethyl-kijanolid (184)	Spirotetronate glycoside.	<i>M. harpali</i> SCSIO GJ089.	Sediment sample. Marine	2017	NA	83
8-hydroxy-22-dehydroxymethyl-kijanolid (185)	Spirotetronate glycoside.	<i>M. harpali</i> SCSIO GJ089.	Sediment sample Marine	2017	NA	83
Microsporanates A-F (186-191)	Spirotetronate glycoside.	<i>M. harpali</i> SCSIO GJ089.	Sediment sample Marine	2017	Antibacterial activity	83
Tetrocarcin N, H,Q (192-194)	Tetrocarcin	<i>M. carbonacea</i> LS276	sponge	2018	Antibacterial activity against	83
	Spirotetronate glycoside		<i>Gelliodes carnosa</i> ,		<i>Bacillus subtilis</i> (MIC) value of 12.5 µM.	

Actinomycins (195)	Polypeptide	<i>Micromonospora</i> <i>sp.</i> 608	Soil	1951	Anticancer	84
Microcins A and B (196 -197)	Peptides	<i>M. fuscus</i>	Soil	1952	-----	(Taira and Fugii ., 1952)
Bottromycin (198)	Cyclic peptide	<i>M. chalcea</i>	Soil	1966	NA	85
Antibiotic SF 1919 (199)	Peptide.	<i>Micromonospora</i> <i>sp.</i> SF-1919,	Soil	1977	Antibacterial	Japan. Pat., 1977, 77 136 995
Antibiotic 68-1147 (200)	Thiazole-peptide	<i>M. arborensis</i> <i>NRRL8041</i>	Soil	1978	Antibacterial	86
Sch 18640 (201)	Peptide	<i>M. arborensis</i> <i>NRRL8041</i>	Soil	1978	Antibacterial	. 86
Epideoxynegamycin (202)	peptide	<i>Micromonospora sp</i>	Soil	1979	NA	87
Antibiotic PA 4046-I (203)	peptide	<i>M. miyakonensis</i> PA4046	Soil	1981	NA	88
N-(2,6-diamino-6- hydroxymethylpimelyl) -L-alanine (204)	Dipeptide	<i>M. chalcea</i> PA-3534	Soil	1981	Antibacterial	89
Antibiotic PA 3534J (205)	Dipeptide	<i>M. chalcea</i> PA- 3534	Soil	1981	Active against E. coli.	89
Antibiotic M 9026 (206)	Peptide antibiotic complex	<i>Micromonospora</i> <i>sp.</i>	Soil	1987	Antibacterial Anticancer	90
Antibiotic S 54832A (207)	Depsipeptide antibiotics	<i>M. globosa</i>	Soil	1984	Active against Gram-positive bacteria, mycoplasmas and Neisseriae sp	91
Antibiotic S 54832A-I (208)	Depsipeptide antibiotics	<i>M. auratinigra</i>	Soil	1984	No activity	91
Chloropolysporin B Chloropolysporin C	Glyco peptide	<i>Micromonospora</i> <i>sp.</i>	Soil	1987	Antibacterial Animal growth	92

(209,210)					promoter.	
Sch 37137 (211)	Dipeptides	<i>Micromonospora</i> <i>sp.</i> SCC 1792	Soil	1988	Antifungal activity against <i>Candida</i> <i>sp.</i> (MICs >12 µg/ml) and dermatophytes (MICs >0.8 µg/ml).	⁹³
Korkormicins A-G) (212 – 218)	Depsipeptide	<i>Micromonospora</i> <i>sp.</i> C39500	Soil	1995	Antibacterial MIC (0.13- 0.5 µg/ml). Anticancer (in vivo 0.05-0.20 mg/ kg(IP) .	⁹⁴
Rakicidin A (219)	Cyclic lipopeptide	<i>Micromonospora</i> <i>sp.</i> R385-2a	Soil	1995	Cytotoxic IC 50 (40ng/ml).	⁹⁵
Rakicidin B Antibiotic FW 523-3 (220)	Cyclic lipopeptide	<i>M. chalcea</i> and a <i>Micromonospora</i> <i>sp.</i>	Marine	1995	Anticancer, Induces apoptosis. Immunosuppressa nt. IC ₅₀ (200ng/ml).	⁹⁵
Thiocoraline (221)	Thiodepsipeptide	<i>Micromonospora</i> <i>sp.</i> ACM2- 092	Marine ,Soft coral and mollusk.	1997	Cytotoxic activity IC50 (0.002µg/ml). Antibacterial MIC (0.03-0.05 µg/ml)	⁹⁶
Antibiotic Sch 40832 (222)	Peptide	<i>M. carbonaceae</i> var. <i>africana</i>	Soil	1998	Antibacterial	⁹⁷
Antibiotic Sch 49088 (223)	Oligosaccharide	<i>M. carbonaceae</i>	Soil	1998	NA	⁹⁸
Actinomycin Z ₁ -Z ₅	Chromopeptide	<i>M. floridensis</i>	Soil	2000	Antibacterial , B.	⁹⁹

(224-228)

subtilis. MIC
12.5, 0.20, 0.78
µg/ml.
Anticancer IC₅₀
(0.28-50 µg/ml).

Telomycin
(229)

Macrocyclic
peptide lactone

M.
schwarzwaldensis

Soil

2013

Antibacterial
activity

100

Cyclo-(Pro-Trp)
(230)

Peptide

Micromonospora
sp. (strain G044)

sponge
Tethya
aurantium

2017

Antibacterial
against E-coli
MIC 128µg/ml.

101

Cyclo-(Pro-Met)
(231)

Peptide

Micromonospora
sp. (strain G044)

sponge
Tethya
aurantium

2017

NA

101

Cyclo-(Pro-Val)
(232)

Uridine
(233)

Peptide

Micromonospora
sp. (strain G044)

sponge
Tethya
aurantium

2017

NA

101

Rakicidins G, H, I
(234-237)

Cyclic depsipeptides

M.
chalcea FIM 02-523

Marine

2018

Cytotoxic
IC 50 (0.00783-
0.0207
µg/ml))hypoxia
IC₅₀ (0.148-
0.188µg/ml).
Antibacterial
MIC (0.125-
8µg/ml)

102

Rakicidin E
(238)

Cyclic depsipeptide

M. chalcea FIM
02-523

Marine

2018

Cytotoxic
Antibacterial
MIC (2-32 µg/ml)

102

Izumenolide
(239)

Lactone

M. chalcea subsp.
izumensis

Soil

1980

Antibacterial

103

		SC 11133				
Dotriacolide (240)	Lactone	<i>M. echinospora</i> MG299-fF35	Soil	1981	Antibacterial	104
3, 4-Dihydrodotriacolide (241)	Lactone	<i>M. echinospora</i>	Soil	1981	NA	104
Antascomicins A,B,C,D,E (242-246)	Macrocyclic lactones	<i>Micromonospora</i> <i>sp.</i> DSM 8429	Soil	1996	Antagonize the immunosuppressiv e activity of FK506 and rapamycin (FKBP12 binding molecules) (IC ₅₀ 0.7 nM)	105
Cymbimicin A and B (247,248)	Lactone	<i>Micromonospora</i> <i>sp.</i> DSM 8594	Soil	1997	Immuno- suppressive.	105
Antibiotic PA 2046 (249)	Pyranonaphthoquinon e	<i>M. nakanoshimensis</i>	Soil	1981	Antitumor	Japan. Pat., 1981, 81 73 096
M-92, M-92 BN-3, M-92 VA-2, M-92 BA-4, M-92 BA-5, M-92 BN-1, M-92 BN-2 (250-256)	Naphthoquinone	<i>M. verruculosa</i> M- 92	Soil	1982	Antibacterial activity Anticancer activity	106
Crisamicin A (257)	Naphthoquinone	<i>M.</i> <i>purpureochromogen</i> <i>es</i> subsp. <i>halotolerans</i> RV-79-9-101	Soil	1986	Antibacterial activity MIC (0.2- 10µg/ml). Anticancer activity	107
Crisamicin C (258)	Naphthoquinone	<i>M.</i> <i>purpureochromogen</i> <i>es</i>	Soil	1988	Antibacterial MIC (0.125- 0.25µg/ml).	108

Crisamicin C (Epoxide) (259)	Naphthoquinone	<i>M. purpureochromogenes</i>	Soil	1988	NA	108
Antibiotic A 35566B (260)	Naphthoquinone	<i>Micromonospora</i> sp. SANK 6039	Soil	1995	Cytotoxic	Japan. Pat., 1995, 95 316 091
Antibiotic A 35566A (4'-Ketone) (261)	Naphthoquinone	<i>Micromonospora</i> sp. SANK 6039	Soil	1995	Cytotoxic	Japan. Pat., 1995, 95 316 091
9-Hydroxycrisamicin A (262)	Naphthoquinone	<i>Micromonospora</i> sp. SA246	Soil	1997	Antibacterial ,cytotoxic	109
1-Hydroxycrisamicin A (263)	Naphthoquinone	<i>Micromonospora</i> sp. SA246	Soil	1997	Antibacterial , MIC (0.78-3.12 µg/ml) cytotoxic	109
7-Methoxy-2-propyl-5,12-naphthacenedione (264)	Naphthoquinone	<i>Micromonospora</i> sp. JN79761	Marine	2012	NA	110
1,2,3,4-Tetrahydro-2-hydroxy-7-methoxy-2-propyl-5,12-naphthacenedione (265)	Naphthoquinone	<i>Micromonospora</i> sp. JN79761	Marine	2012	NA	110
K 259-2 (266)	Quinone	<i>M. Olivasterospora</i>	Soil	1987	Inhibitor of Ca2+ and cyclic nucleotide phosphodiesterase. Vasodilator.	111
Citreamicin ξ Citreamicin β Citreamicin γ Citreamicin η (267-270)	Quinone	<i>M. citrea</i>	Soil	1990	Feed additive	112

Antibiotic GTRI-BB (crysamicin analog) (271)	Quinone	<i>Micromonospora</i> <i>sp.</i> SA-24	Soil	2002	Cytotoxic GI ₅₀ (0.08-0.31µg/ml).	113
Streptonigrin 7-(1-methyl-2 oxopropyl)streptonigrin (272)	Quinone	<i>Micromonospora</i> <i>sp.</i> IM 2670	Soil	2002	Cytotoxic activity	114
Kosinostatin (273)	Quinocycline	<i>Micromonospora</i> <i>sp.</i> TPA0468	Marine	2002	NA	115
Fluostatins C-F (274-277)	Quinone	<i>M.</i> <i>rosaria</i> SCSIO N160	Marine	2012	NA	116
Fluostatins I–K (278-280)	Quinone	<i>M.</i> <i>rosaria</i> SCSIO N160	Marine	2012	NA	116
Phenanthroviridone (281)	Quinone	<i>M.</i> <i>rosaria</i> SCSIO N160	Marine	2012	Antibacterial Staphylococcus aureus MIC 1.0 µg/mL Antitumor IC ₅₀ (0.09 ± 0.04 - 2.18 ± 0.01µM)	116
Lagumycin B (282), Dehydrorabelomycin (283), WS-5995 A (284)	Angucycline	Micromonospora <i>sp.</i>	Marine	2015	Cytotoxic	117
Cervinomycin A ₁ (285)	Xanthone	<i>Micromonospora</i> <i>sp.</i> M39	Soil	2004	Antibacterial	118
Dynemicin A (286)	Anthraquinone (Enediyne antibiotic)	<i>M. chersina</i> ATCC 53710	Soil	1989	Antibacterial activity Anticancer activity	119
Deoxydynemicin A (287)	Anthraquinone	<i>M. globosa</i> FERM P-10651	Soil	1990	Antibacterial activity	120

Dynemicins L, M, and N (288-290)	Anthraquinones	<i>M. chersina</i> M 965-1	Soil	1991	Antibacterial , cytotoxic less than dynemicin A	121
Dynemicins O, P, and Q (291-293)	Anthraquinones	<i>M. chersina</i> M 965-1	Soil	1991	Antibacterial cytotoxic	122
Endynamicin A and B (294-295)	Anthrquinones	<i>M. globosa</i>	Soil	1991	Antineoplastic	Japan. Pat., 1991, 91 63 281
Dynemicin C (296)	Enediye antibiotic	<i>M. chersina</i>	Soil	1992	NA	Eur. Pat., 1992, 484 856
Lupinacidins A, B (297,298)	Anthraquinone	<i>M. lupine</i> Lupac 08	Root nodules of <i>Lupinus</i> <i>Angustifoli</i> us	2007	Anticancer	123
2-Ethyl-1,8-dihydroxy-3- Methylanthraquinone (299)	Anthraquinone	<i>M. rhodorangea</i>	Marine	2009	NA	124
3,8-Dihydroxy-1- propylanthraquinone (300)	Anthraquinone	<i>M. rhodorange</i>	Marine	2009	NA	124
3,8-Dihydroxy-1- propylanthraquinone-2- carboxylic acid; 3-Me ether (301)	Anthraquinone	<i>M. rhodorange</i>	Marine	2009	NA	124
Lupinacidin C (302)	Anthraquinone	<i>M. lupini</i> Lupac 08	Root nodules of <i>Lupinus</i> <i>Angustifoli</i>	2011	Anticancer	125

			us			
Homo-ε-rhodomyacinone (303)	Anthraquinone	<i>Micromonospora</i> <i>sp. JN797618</i>	Marine	2012	Cytotoxic	126
Rabelomycin (304)	Anthraquinone	<i>M.</i> <i>rosaria</i> SCSIO N160	Marine	2012	Antibacterial Staphylococcus aureus MIC 0.25 µg/ml Antitumor IC50 (4.28 ± 0.08- 9.91 ± 0.08).	116
Nocardorubin (305)	Anthracycline	<i>M. narashino</i>	Soil	1954	Antibacterial agent	127
Doxorubicin, 11-deoxy Daunorubicin, 11-deoxy- 13-dihydro Daunorubicin, 11-deoxy- 13-deoxo (306-308)	Anthracycline glycosides	<i>Micromonospora spp</i>	Soil	1980	Antibacterial Cytotoxic	128
Micromonosporin C Micromonosporin B (309,310)	Anthracycline	<i>Micromonospora</i> <i>sp. ATCC 10026</i>	Soil	1987	Antitumor Antibacterial	129
Spartanamicins A and B (311,312)	Anthracycline	<i>Micromonospora</i> <i>sp. ATCC</i> 53803	Soil	1992	Antifungal MIC (0.2- 1µg/ml).	130
Cororubicin (313)	Anthracycline	<i>Micromonospora</i> <i>sp. JY16</i>	Soil	1994	Antitumor , cytotoxic	131
Bravomicin A ,B,C,D,E and F (314-319)	Anthracycline	<i>M. polytropa</i> ATCC 202091	Soil	1999	Antibacterial	US Pat., 1999, 5 994 543

Kosinostatin (320)	Anthracycline	<i>Micromonospora</i> <i>sp. TP-A0468</i>	Marine	2002	NA	115
Micromonomycin (321)	Anthracycline	<i>Micromonospora</i> <i>sp.</i>	Soil	2004	Antibacterial activity Antifungal activity	132
Keyicin(322)	Anthracycline	<i>Micromonospora</i> <i>sp.</i>	Marine	2017	Antibacterial	133
Galtamycin B (323)	Anthracycline	<i>Micromonospora</i> <i>sp. Tü 6368</i>	Soil	2005	Cytostatic activity < 1µg/ml.	134
Anthracyclinones (324)	Anthracyclinones	<i>Micromonospora</i> <i>sp.</i>	Tunicate Eudistoma vannamei	2012	NA	126
Echinosporamicin (325)	Echinosporamicin	<i>M. echinospora</i> subsp. <i>echinospora</i> LL- P17	Soil	2004	Antibacterial Against MRSA MIC < 0.12 µg/ml.	135
TLN-05220 TLN-05223 (326-327)	Echinosporamicin -type antibiotics	<i>M. echinospora</i> subsp. <i>challisensis</i> NRRL 12255	Soil	2009	Antitumour antibacterial	136
Everninomicins (328)	Oligosaccharides	<i>M. carbonacea</i> NRRL 2972 <i>M. carbonacea</i> subsp. <i>aurantiaca</i> NRRL 2997 <i>M. carbonacea</i> var. <i>africana</i> ATCC39149	Soil	1964	Antibacterial	137
Orthosomycin B Orthosomycin C Orthosomycin D (329-331)	Oligosaccharide	Micromonospora carbonacea var. Africana	Soil	1997	Show activity against Staphylococcus aureus	Pat. Coop. Treaty (WIPO), 1997, 97 13 777

SCH-27899 (Ziracin) (332)	Oligosaccharide	<i>M. carbonacea</i>	Soil	1999	Antibacterial activity	138
Antibiotic Sch 58761 Orthosomycin A (333)	Oligosaccharide	<i>Micromonospora carbonaceae</i>	Soil	2000	Active against multidrug-resistant bacteria	139
Antibiotic Sch 58773 Orthosomycin G (334)	Oligosaccharide	<i>M. carbonacea</i> var. <i>africana</i>	Soil	2002	NA	34
Antibiotic Sch 58771 Orthosomycin F (335)	Oligosaccharide	<i>M. carbonacea</i> var. <i>africana</i>	Soil	2002	Active against S. aureus	34
Antibiotic Sch 58769 (336)	Oligosaccharide	<i>M.carbonacea</i> var. <i>africana</i>	Soil	2002	Active against S. aureus	34
Garosamine (L-form) (337)	Sugar	Sugar component of Gentamicin C1a and Gentamicin C1, antibiotic complexes from fermentations of <i>Micromonospora</i> .	----	1977	NA	5
Trehazolin (338)	Pseudodisaccharide	<i>Micromonospora</i> sp. SANK 62390	Soil	1991	Trehalase glycosidase inhibitor	140
Sibanomicin Antibiotic SF 2364 (339)	Pyrrole benzodiazepines	<i>Micromonospora</i> sp. SF2364	Soil	1988	Anticancer Antibacterial Gram + ve (MICs12.5-100 µg/ml) Gram –ve (50 -	141

					>100).	
BU-4664L (340)	Dibenzazepines	<i>Micromonospora</i> <i>sp.</i> ATCC 55378	Soil	1996	Anti-inflammatory anti-tumor	142
Neihumicin (341)	Pyrazines	<i>M. neihuenis</i> NH3-1 Wu	Soil	1988	Cytotoxic activity. Antifungal activity. IC 50 (0.49 µg/ml)	143
LL-E19085 alpha Citreamicin α (342)	Oxazole Quinone	<i>M. citrea</i> NRRL 18351	Soil	1989	Antibacterial MIC < 0.12 µg/ml.	144
Citreamicins (343)	Oxazole Quinone	<i>M. citrea</i> NRRL 18351	Soil	1990	Antibacterial activity MIC <0.015µg/ml.	112
Trehalamine (344)	Oxazoles	<i>Micromonospora</i> <i>sp.</i> SANK 62390	Soil	1993	Inhibit rat intestinal sucrase	145
5-Chloro-6-methoxy-1- methylisatin (345)	Indole	Metab. of <i>M.carbonaceae</i>	Soil	1967	NA	146
5'-hydroxystaurosporine (346)	Indol carbazole alkaloid	<i>Micromonospora</i> <i>sp.</i> L-31- CLCO-002	Sponge	2000	Cytotoxic activity IC50 (0.002-0.02 µg/ml).	147
4'-N-methyl- 5'hydroxystaurosporine (347)	Indol carbazole alkaloid	<i>Micromonospora</i> <i>sp.</i> L-31- CLCO-002	Sponge	2000	Cytotoxic activity IC50 (0.002-0.04 µg/ml).	147
Skatole-2-carboxylic acid 3-Methyl-1H-indole-2- carboxylic acid (348)	Indole	<i>Micromonospora</i> <i>sp.</i> P1068.		2005	NA	148
5-Chloro-1H-indole-3-	Indole	<i>Micromonospora</i>	Marine	2013	NA	76

carboxylic acid (349)		<i>sp.</i> FIM07-0019				
3-Hydroxymethyl-β-carboline (350), 3-Methyl-β-carboline (351), β-Carboline (352)	β-carboline	Micromonospora <i>sp.</i> M2DG17	Marine	2011	Cytotoxic	149
Antibiotic MS 444 Antibiotic BE 34776 (353)	Furan	<i>Micromonospora</i> <i>ssp</i>		1995	Antitumour, vasodilator, inhibitor of myosin light chain kinase	150
Antibiotic SB 219383 (354)	Furan	<i>Micromonospora sp</i> NCIMB 40684	Soil	2000	Tyrosyl tRNA synthetase inhibitor. Antibacterial activity MIC (0.32-0.64 μg/ml).	151
3-(4-Hydroxyphenyl)-N-methylpropanamide (355)	Amide	<i>Micromonospora</i> <i>sp. P1068</i>		2005	NA	148
Lomaiviticins A and B (356,357)	Dimeric diazobenzofluorene glycosides	<i>M. lomaivitiensis</i> LL-37I366	Ascidian Polysyncraton lithothamnium	2001	Antitumor Antibacterial	152
Sch 725418 (358)	Diketopiperazine	<i>Micromonospora</i> <i>sp.</i>	-----	2004	Antifungal MIC (32μg/ml).	153
Diazepinomicin (359)	Natural dibenzodiazepine	<i>Micromonospora</i> <i>sp.</i> DPJ12	Ascidian <i>Didemnum</i> <i>Proliferum</i>	2004	Anticancer activity IC50 = 72.4 ± 5.3 μM) Anti-inflammatory Antiparasitic activity	154
		<i>Micromonospora</i> <i>sp.</i> RV115	Sponge <i>Aplysina</i> <i>aerophoba</i>			

Halomicin D (360)	Ansamycin	<i>M. halophytica</i>	Soil	1967	Antibacterial Antifungal	155
Rifamycins (361)	Ansamysins	<i>M. lacustris</i> ATCC 21975	Soil	1977	Antibacterial activity	156
3-(Methylthio)rifamycin (362)	Ansamycin	<i>M. lacustris</i>	Soil	1977	Antibacterial Active against gram positive bacteria	156
3-(Methylthio)rifamycin; 16,17,18,19,28,29- Hexahydro (363)	Ansamycin	<i>M. lacustris</i>	Soil	1977	NA	156
3-(Methylthio)rifamycin S (364)	Ansamycin	<i>M. lacustris</i>	Soil	1977	Antibacterial Active against gram positive bacteria	156
3-(Methylthio)rifamycin; 1,4-Quinone, 16,17,18,19,28,29- hexahydro (365)	Ansamycin	<i>M. lacustris</i>	Soil	1977	NA	156
Antibiotic CP 43038 Antibiotic CP 42752 Antibiotic CP 43139 (366-368)	Ansamycin	<i>M. saitamica.</i>	Soil	1977	NA	US Pat., 1977, 4 032 631
Halomicins A,B,C (369-371)	Ansamysins	<i>M. halophytica</i> subsp. <i>halophytica</i> NRRL 2998 <i>M. halophytica</i> subsp. <i>nigra</i> NRRL 3097	Salt pool	1977	Antibacterial Antifungal	157
Rifamycin S (372)	Ansamycin	<i>Micromonospora</i> <i>spp.</i>		2009	Antibacterial agent esp. active against	158

Butremycin(377)	Macrolactam	<i>Micromonospora</i> <i>sp. K310</i>	Marine	2014	mycobacteria. Antibacterial	159
lobosamides A-C (378-380)	Macrolactam	<i>Micromonospora</i> <i>sp.</i>	Marine	2015	Antiparasitic activity mainly A IC ₅₀ (0.8 μM)	160
FW05328-1 (381)	Macrolactam (Ansamycin)	<i>Micromonospora</i> <i>sp.</i> FIM05328	Soil	2018	Antiproliferative IC ₅₀ (0.00020- 30.77μM.	161
Aurodox (382)	Macrolactam (Ansamycin)	<i>Micromonospora</i> <i>sp.</i> FIM05328	Soil	2018	Antiproliferative IC ₅₀ (20.56-83.76 μM).	161
Microansamycins A–I (383-391)	Macrolactam (ansamycin)	<i>Micromonospora</i> <i>sp.</i>	-----	2018	Weak antioxidant only compound B with IC ₅₀ 0.85 mmol/L. Compounds A-C showed antibacterial activity with MICs 0.016- 0.5 μg/mL. Compounds D-F showed moderate antibacterial activity with MICS 1-8 μg/mL.	162
Sporalactam A (392)	Ansa Macrolide	<i>Micromonospora</i> <i>sp.</i>	marine sediment	2017	Antibacterial (0.8-7 μM)).	163
Sporalactam B (393)	Ansa Macrolide	<i>Micromonospora</i> <i>sp.</i>	marine sediment	2017	Antibacterial (0.06 -1.8 μM)).	163

3-amino-27-demethoxy-27-hydroxyrifamycin S (394)	Ansa Macrolide	<i>Micromonospora</i> sp.	marine sediment	2017	Antibacterial (0.0001-0.0009μM)	163
3-amino-rifamycin S (395)	Ansa Macrolide	<i>Micromonospora</i> sp.	marine sediment	2017	Antibacterial (0.0001-0.0008 μM)	163
Hazimicins (5 and 6) (396,397)	Nitriles	<i>M. echinospora</i> var. <i>challisensis</i> SCC 1411	Soil	1983	Antibacterial Antifungal	164
Antibiotic Y 03559J-A (398)	Isonitrile	<i>Micromonospora</i> sp. Y-03559J	Soil	1995	Antibacterial	Japan. Pat., 1995, 95 02 821.
YM-47515 (399)	Isonitrile compound	<i>M. echinospora</i> subsp. <i>echinospora</i> Y-03559J	Soil	1997	Antibacterial activity Against gram positive bacteria zone of inhibition (17-36mm)	165
Retymicin (400)	Xanthone	<i>Micromonospora</i> sp. Tü 6368	Soil	2005	Cytostatic activity < 1μg/ml.	134
MDN-0185 (401)	Polycyclic Xanthone	<i>Micromonospora</i> sp. CA-256353	-----	2018	Antiplasmodial IC50 (9 Nm).	166
Mycinonic acid III (402)	Fatty acid	<i>M. griseorubida</i>	Soil	1991	Proposed biosynth. intermed. of mycinamycins	167
Epimycinonic acid I (403)	Fatty acid	<i>M. griseorubida</i>	Soil	1991	Proposed biosynth. intermed. of mycinamycins	167
Mycinonic acid I Mycinonic acid II. Mycinonic acid IV Decarboxymycinonic acid III (404-407)	Fatty acid	<i>M. griseorubida</i>	Soil	1991	Proposed biosynth. intermed. of mycinamycins	167

3,15-Dihydroxy-4,6,8,14-tetramethyl-5,9-dioxo-10,12-heptadecadienoic acid (408)	Fatty acid	<i>M. griseorubida</i>	Soil	1992	NA	168
Saquayamycin Z (409)	Saquayamycin	<i>Micromonospora</i> <i>sp.</i> Tü 6368	Soil	2005	Cytostatic activity < 1µg/ml.	134
Psicofuranine (410)	Nucleoside-type antibiotic	<i>M. echinospora</i>	Soil	1959	Antitumour and antibacterial	169
7-Deazainosine (411)	Nucleoside antibiotic.	<i>M. chalcea</i>	Soil	1970	Cytotoxic	Japan. Pat., 1970, 20 559.
5,6-Dihydro-5-azathymidine (412)	Nucleoside antibiotic	<i>M. melanogenes</i>	Soil	1975	Antibacterial Antiviral	US Pat., 1975, 3 907 643.
Dapiramicin A (413)	Ribonucleoside	<i>Micromonospora</i> <i>sp.</i> SF-1917	Soil	1983	Antifungal Effective against sheath blight in rice plants caused by Rhizoctonia solani, and against Colletotrichum lagenarium on cucumbers	170
Epidapiramicin A (414)	Ribonucleoside	<i>Micromonospora</i> <i>sp.</i>	Soil	1984	Shows activity against sheath blight in rice plants. Less effective than Dapiramicin A	171
Sch 40832 (415)	Thiostrepton	<i>M. carbonacea</i> var. africana ATCC 39149	Soil	1998	Antibacterial activity	97

Streptimidone Ao58A (416)	Glutarimide	<i>M. coerulea</i> Ao58	Sea-mud soil	1999	Antifungal activity MIC (3-10µg/ml).	172
Maklamicin (417)	Spirotetronate polyketide	<i>Micromonospora</i> <i>sp.</i> GMKU326	Root of a leguminous plant.	2011	Antibacterial MIC (0.2-13µg/ml)	173
Neomacquarimicin (418)	Carbocyclic polyketide	<i>Micromonospora</i> <i>sp.</i> NPS2077	Marine sponge	2014	Anticancer IC ₅₀ (17-34 µM) -----	174
MBJ-0003 (419)	Hydroxamate metabolite	<i>Micromonospora</i> <i>sp.</i> 29867	Shellfish, Marine	2014	Cytotoxic IC ₅₀ (11µM)	175
7-Acetyl-3, 6-dihydroxy- 8- methyl-1-tetralone. GTRI 02. L-form (420)	-----	<i>Micromonospora</i> <i>sp.</i> SA246	Soil	1998	Lipid peroxidation inhibitor IC ₅₀ 1.89 µg/ml.	176
Naphthalenepropanoic acid (421)	-----	<i>Micromonospora</i> <i>sp.</i> HS-HM-036	Muddy sea sediments	2016	Anticancer IC ₅₀ (46.5 µg/ml). Antibacterial activity MICS (0.016 and 8 mg/ml).	177
Serine alkaline proteases (422)	Enzymes	<i>M.</i> <i>chaiyaphumensis</i> S103	Sfax solar saltern .	2017	Deproteinization of shrimp waste. Detergent	178
2- phenylacetic acid (423)	Aromatic acid	<i>Micromonospora</i> <i>sp.</i> (strain G044)	sponge	2017	-----	101

Diacidene (424)	Polyene Dicarboxylic Acid	Micromonospora coxensis MTCC 8093	Marine	2012	-----	180
Antibiotic XK 206 (425)	-----	<i>Micromonospora sp</i>	Soil	1980	Weak antibacterial	Japan. Pat., 1980, 80 15 409.
Deoxydehydrochorismic acid 3-(1 Carboxyvinyl)oxy)benzoic acid (426)	Aromatic acid	<i>M. coxensis</i>	Marine	2012	NA	180
Glutamine scyllo-inositol transaminase (427)	Aminotransferase enzyme	<i>M. purpure</i>	Soil	1989	Catalyses the reaction of L- glutamine with 2,4,6/3,5- pentahydroxycyclo hexanone to give 2-oxoglutaramate and 1-amino-1- deoxy-scyllo- inosito	181
Glyphomicin (428)	Phosphoglycolipid	<i>Micromonospora sp.</i> ATCC 53481	Soil	1989	Antibacterial	US Pat.,1989,4,842 857 182
M GCI (429)	Glycoprotein	<i>Micromonospora sp.</i> BR-1613	Soil	1984	β-Glucuronidase inhibitor	183
Isopimar-2-one-3-ol- 8,15-diene(430)	Diterpene	<i>Micromonospora sp.</i>	Marine	2015	-----	117
Micromonohalimanes A (431) and B (432)	Diterpene	Micromonospora sp.	Marine		Antibacterial	184
Daidzein-40-(2-deoxy-α- l-fucopyranoside)(433)	Isoflavonoid	<i>M. aurantiaca 110B</i>	Soil	2019	Moderate cytotoxic activity	185
Daidzein-7-(2-deoxy-α-l- fucopyranoside)(434)						
Daidzein-40,7-di-(2-						

deoxy- α -l-fucopyranoside)(435)						
Dimethyl phenazine-1,6-dicarboxylate (436)	Alkaloids	Micromonospora sp	Marine	2020	Antibacterial, antibiofilm and moderate cytotoxic activity	186
phenazine-1,6-dicarboxylic acid mono methyl ester(437)		UR 56				
Phenazine-1-carboxylic acid; tubermycin(438)						
N-(2-hydroxyphenyl)-acetamide(439)	Aromatic acid	<i>Micromonospora</i> sp	Marine	2020	Cytotoxic	186
		UR 56				
<i>p</i> -anisamide(440)	Aromatic acid	<i>Micromonospora</i> sp	Marine	2020	Antibacterial, antibiofilm and moderate cytotoxic activities	186
		UR 56				
<i>Paulomycin G</i> (441)	<i>Paulomycin</i>	<i>M. matsumotoense</i>	<i>Marine</i>	2017	<i>Antibacterial and cytotoxic activities</i>	187
		<i>M-412</i>				

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